**DETAILED ACTION**

1. Applicants' arguments, filed February 1, 2010, have been fully considered but they are not deemed to be fully persuasive. The following rejections and/or objections constitute the complete set presently being applied to the instant application.

***Claim Rejections - 35 USC § 112 – 2nd Paragraph***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 12, 13, 15 – 17, 21, 23, 25, 26, 28, 29, 32 and 33 were rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention as to the limitation "biocompatible polymer of natural origin". This rejection is MAINTAINED for the reasons of record set forth in the Office Action mailed July 31, 2009 and those set forth below.

Applicant traverses this rejection on the grounds that this could mean polymers isolated from sources and polymers synthesized in a lab. Even laboratory synthesized polymers can be identical to and represent natural origin polymers.

This definition does not make sense and is unpersuasive. The statement does not define this term as only those polymers that occur in nature, regardless of source. Laboratory synthesized polymers such as carboxymethyl cellulose recited in dependent

claim 13, as set forth in the previous Office Action, is not found in nature. The statements of Applicant and the instant claims have not clarified "biocompatible polymer of natural origin" so this rejection is maintained.

4. Claims 32 and 33 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear what compositions are being compared in the limitation "biocompatible matrix comprising grafted chains is less than an identical biocompatible matrix but without grafted chains" (emphasis added). If things are identical, there are no differences between the items but yet one is grafted and one is not. For example, is the grafted molecules absent from the composition or included in the mixture but not grafted to the polymer backbone? Please clarify.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 12, 13, 17, 32 and 33 were rejected under 35 U.S.C. 103(a) as being unpatentable over Nguyen (EP 0749982). This rejection is MAINTAINED for the reasons of record set forth in the Office Actions mailed May 9, 2009, November 24, 2008 and July 31, 2009 and those set forth below.

Applicant traverses this rejection on the grounds that matrix materials having grafted chains with 10 – 40% grafting have improved gel resistance against attack from components (i.e., enzymes and free radicals) when injected while also providing a gel with reasonable ejection force, materials that are not taught or suggested by Nguyen. The upper limit of grafting in Nguyen is 10%, with preferred values well below this limit. The object is to improve resistance to radical degradation, whereas the materials of the

instant claims has improved resistance to radical degradation and other type of degradation (i.e., enzymatic), one reason the amount of graft (10 – 40%) is much higher than in Nguyen. The maximum of 10% was probably recognized by Nguyen as limiting the amount of grafting so that the product could be injected. One of ordinary skill in the art would consider that such a highly grafted product would not allow for injection into the body. Critically and unexpectedly, the grafting amounts claimed reduce the ejection force as compared to non-grafted polymers, as shown in Table 1 and Table 2 of the specification.

These arguments are unpersuasive. In regards to the new claim limitation of claim 33, the preferred hindered phenol antioxidant moieties grafted on the polymers of Nguyen (p 2, ln 39 – 40; p 5, ln 31 – p 6, ln 6) read on the grafted chain comprising a cyclic molecules as recited in amended claim 33.

The upper limit of the grafting range disclosed by Nguyen is 10%. The lower limit of the range claimed by Applicant is 10%. A *prima facie* case of obviousness exists where the claimed ranges and prior art ranges do not overlap but are close enough that one skilled in the art would have expected them to have the same properties. *Titanium Metals Corp. of America v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985; **MPEP 2144.05**).

The data set forth in Table 1 and Table 2 is insufficient to establish the unexpected properties of the compositions encompassed by the instant claims and the criticality of the claimed range. Two amounts of grafting (24.6% in example 3 and 10.3% in example 7) are set forth. Example 3 of the instant application utilizes a specific

bifunctional epoxide cross-linker with the biocompatible polymer benzyl hyaluronate and vitamin C while heparin was grafted in example 7. All of the other examples are only cross-linked and not grafted. This data is not commensurate in scope with the instant claims regarding the biocompatible polymer of natural origin, the various cross-linkers, the type of material grafted onto the biocompatible polymer of natural origin and the full range of grafting quantities being claimed and also provide comparison of these parameters in comparison to the materials set forth in Nguyen.

A reference as to ejection forces that can no longer be ejected is set forth has not been provided or evidence that higher grafting amounts of the polymers of Nguyen could not be injected due to their higher ejection forces.

Therefore, this rejection is maintained.

9. Claims 12, 13, 16, 23, 26, 29, 32 and 33 were rejected under 35 U.S.C. 103(a) as being unpatentable over Nguyen further in view of Ramamurthi (J Biomed Mater Res 2002). This rejection is MAINTAINED for the reasons of record set forth in the Office Actions mailed May 9, 2008, November 24, 2008 and July 31, 2009 and those set forth below.

Applicants traverse this rejection on the grounds that Ramamurthi fails to remedy the deficiencies of Nguyen.

As discussed in greater detail above, Nguyen is not deficient so Ramamurthi is not required to cure this deficiency. Therefore, this rejection is maintained for the reasons of record.

10. Claims 12, 13, 15, 21, 32 and 33 were rejected under 35 U.S.C. 103(a) as being unpatentable over Nguyen further in view of Bolotin (US 2003/0224974). This rejection is MAINTAINED for the reasons of record set forth in the Office Actions mailed May 9, 2008, November 24, 2008 and July 31, 2009 and those set forth below.

Applicants traverse this rejection on the grounds that Bolotin fails to remedy the deficiencies of Nguyen.

As discussed in greater detail above, Nguyen is not deficient so Bolotin is not required to cure this deficiency. Therefore, this rejection is maintained for the reasons of record.

11. Claims 12, 15, 25, 28, 32 and 33 were rejected under 35 U.S.C. 103(a) as being unpatentable over Nguyen further in view of Bolotin and Ramamurthi. This rejection is MAINTAINED for the reasons of record set forth in the Office Actions mailed May 9, 2008, November 24, 2008 and July 31, 2009 and those set forth below.

Applicants traverse this rejection on the grounds that Bolotin and Ramamurthi fail to remedy the deficiencies of Nguyen.

As discussed in greater detail above, Nguyen is not deficient so Bolotin and Ramamurthi are not required to cure this deficiency. Therefore, this rejection is maintained for the reasons of record.

***Conclusion***

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

13. This application contains claims 14, 18 – 20, 22, 24, 27 30 and 31 drawn to an invention nonelected with traverse in the reply filed on February 29, 2008. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nissa M. Westerberg whose telephone number is (571)270-3532. The examiner can normally be reached on M - F, 8:00 a.m. - 4 p.m. ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael G. Hartley can be reached on (571) 272-0616. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jake M. Vu/
Primary Examiner, Art Unit 1618

NMW